REMARKS

The invention as now claimed is a method for storing an adhesive in which the adhesive is stored in a frozen state in a thin walled or thin walled and roughened container.

The Examiner has rejected claims 1 to 4, 7, and 10 to 13 under 35 USC 103(a) as being unpatentable over Hull (WO 91/01711 A1) in view of Okamoto (JP 08-057051 A). Applicant respectfully traverses.

Hull discloses a medical dispensing system for making tissue adhesive components quickly available for surgical use and a process for preparing this system. This is accomplished by placing a solution or colloid containing the desired tissue adhesive component or components in a container, closing the container and freezing the solution or colloid in the container while the container is rapidly rotated around its axis. This results in coating at least one interior surface of the container with a thin coating of frozen tissue adhesive component. In use, the frozen contents are readily thawed, making them quickly available.

This is a decidedly different method from the instant invention in which the container is not rotated and the walls are not coated with a thin film of the contents to store the adhesive. Moreover, it is stated that the Hull container can be made of some plastics, metal, or glass. Certainly, the grouping of metal and glass with plastics indicates that these are not flexible containers. The container is also not thin-walled. Example 1 describes a syringe with an inside diameter of 0.35 inch, and an outside diameter of 0.42 inch, the difference being the thickness of the syringe at 0.07 inch. This translates to 1.778mm, considerably larger than the dimensions for the wall of the claimed container of claim 1 as now presented.

Thus, Hull does not make obvious the instant invention. There is no teaching or suggestion in Hull to use a thin walled container, or a flexible container, for the method of storing a frozen adhesive, as now presented by amended claim 1.

Applicants have obtained a translation of the Okamoto patent and include the translation for the Examiner's review. The previous understanding of the applicant as to the teaching of Okamoto is modified now that a non-computer translation is available. The Okamoto patent is directed to a syringe for holding liquid

medicines, the syringe prepared from PETD, a random copolymer of ethylene and TCD. TCD is a tetracyclododecene. Example 1 states that the syringe was prepared from an ethylene/dodecene copolymer known as Apel 6509, a product of Mitsui Petroluem Chemical Co. Information from the website for Mitsui indicates that the Apel syringes, including 6509 (T) have a flexural modulus greater than 2400 Mpa. A print-out of pages from that website are included for the Examiner's reference. Both the composition and the flexural modulus of the syringe used in the Okomoto patent are distinctly different from the composition and flexural modulus of the syringe in the instant claimed method as recited in claims 1 and 3. The flexural modulus for the instant container is considerably lower.

Although the surfaces in the Okomoto patent are roughened, they are roughened to create reduced sliding friction, and not to create anchoring points for the frozen adhesive. The roughening in the instant invention is provided to increase mechanical adhesion strength, thus reducing the likelihood of delamination leading to freeze/thaw voids. There is nothing in Okamoto to suggest or teach a method for storing frozen adhesives, particularly not in a syringe as thin walled or a flexible as claimed in the instant invention.

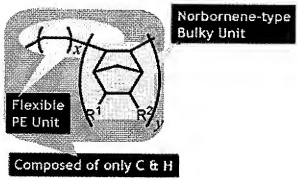
Applicant respectfully urges the Examiner to the conclusion that the above references, alone or in combination, do not make obvious the current invention, and that the claims are in condition for allowance.

MITSUI CHEMICALS AMERICA, INC.

APEL™ *Cyclo Olefin Copolymer (COC)*

APEL™, a cyclo olefin copolymer(COC) developed by Mitsui Chemicals using Ziegler polym technology, is available in film and resin form. The resulting material possesses a unique se characteristics representing the best properties of polyolefins and amorphous plastics.

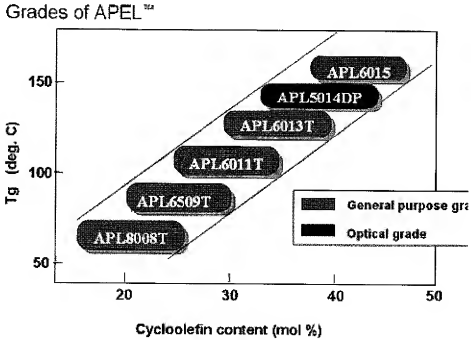
Distinguished by a high density, bulky structure, APEL is a norbornene-type composed only which is amorphous, optically isotropic and non polar.



The material possesses many characteristics inherent in polyolefins such as excellent electr insulating properties and outstanding moisture resistance. In addition, it features good melt processability/flowability, good clarity and transparency, high glass transition temperature (T exceptional moisture impermeability, impressive gas barrier qualities and excellent chemical resistance.

Compared to other resins and engineering plastics, APEL has a lower birefringence and the refractive index (1.54) among commercialized COCs and other cyclo olefin polymers, makin for use in high performance film, optical lens and packaging applications such as DVD playe recorders and SACD players, shrink film and in pharmaceutical packaging such as blister pa

There are six grades available with strong transparency, water vapor barrier and heat distort resistance. Five of the grades are available for general purpose applications and lower Tg gr suitable for film extrusion. One grade is suitable for optical applications and injection molding applications. All grades exhibit good thermal, dielectric and electrical behavior, low shrinkage moisture absorption.



The heat resistant levels of the material can be controlled by modifying the cyclo olefin conte grades APL8008T, APL6509T, APL6011T, APL6013T, APL5014DP and APL6015T.

Mitsui Chemicals, Inc. directly supplies COC to North and South America, through its U.S. su Mitsui Chemicals America, Inc. which is aggressively pursuing the development of new mark opportunities for APEL. Please contact us for more information on COC.

Product (

MITSUI CHEMICALS AMERICA, INC.

APEL™ *Cyclo Olefin Copolymer (COC)*

Applications

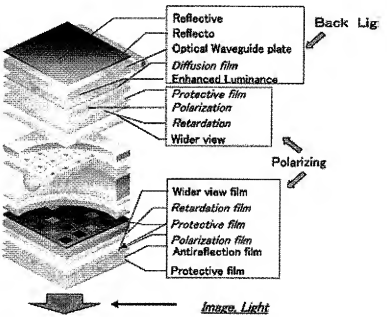
There are numerous actual and potential applications for APEL™ in the film, optical, medica packaging areas.

Film

The low birefringence and high refractive index of APEL, make the material suitable for man of film applications.

It meets the demanding optical application requirements and functions and can be used in th light and image light areas of LCDs such as diffusion film, protective film, retardation film an anti-glare polarizing film for high-resolution LCDs.

Red Letter :
Target Film



Optical

APEL has strong optical properties relative to other commercial resins and can be used in:

- Pick-up lens for DVD player, recorder and SACD player
- Camera lenses (digital cameras and mobile phones)
- Optical film
- f θ lens for laser printer

- Lens for sensor
- Film/sheet for screen of laptop computers

Medical*

The resin can be used in the development of precision medical instruments and components heat and moisture resistance and clarity are requirements. There are numerous possible apl where this transparent resin can be used, including:

- PTP Sheet (See packaging)
- Syringes, vials and bottles
- Pre-filled syringes
- Surgical instruments

Packaging*

Packaging and multilayer barrier films produced with APEL should exhibit improved moisture thermal resistance. Current and potential applications include:

- **Pharmaceutical Packaging**
  - PTP Sheet (Blister Packaging)
  - Shrink caps (Film type)
  - Stand up pouches
- **Food Packaging and Containers**
  - Easy cut film (instant coffee small stick packaging film)
  - Shrink film and label
  - Kitchenware such as coffee maker cover
  - Multilayer packaging
- **Extrusion Coated Packaging**

Mitsui welcomes the opportunity to discuss new and emerging uses of COC. New applicatio continually evaluated by the company.

To learn more about Mitsui's packaging applications, please visit our packaging website.

***APEL™ adheres to the food and medical requirements and regulations governing the Japanese market. Mitsui Chemicals is currently assessing FDA regulation requirement use of APEL™ in food and medical applications in the US market.**

Product (

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Grades and Properties of APEL

Properties	Test Method	Unit	APL8008T	APL6509T	APL6011T	APL6013T	APL6015T	APL501
TMA	MCI Method	°C	80	90	115	135	155	147
Tg	MCI Method	°C	70	80	105	125	145	135
Specific Gravity	ASTM D792	-	1.02	1.02	1.03	1.04	1.04	1.04
MFR (260°C, 2.16Kg)	ASTM D1238	g/10min	15	30	26	15	10	36
HDT (1.82MPa)	ASTM D648	°C	60	70	95	115	135	125
Tensile Strength at Yield	ASTM D638	MPa	50	60	60	60	60	60
Tensile Elongation at Break	ASTM D638	%	100	60	3	3	3	3
Flexural Modulus	ASTM D790	MPa	2400	2500	2700	3000	3200	3200
Flexural Strength	ASTM D790	MPa	90	100	110	110	110	100
Izod Impact Strength								
notched	ASTM D256	J/m	45	35	25	25	25	25
w/o notched		kJ/m^2	33	20	15	15	10	10
Moisture Permeability	ASTM D1249	$g·mm/m^2·d$	0.09	0.09	0.09	0.09	0.09	0.09
Light Transmittance	ASTM D1003	%	91	91	90	90	90	90
Haze	ASTM D1003	%	2	2	3	3	4	2
Refractive Index	ASTM D542	n_d	1.54	1.54	1.54	1.54	1.54	1.54
Mold Shrinkage (MD)	MCI Method	%	0.6	0.6	0.6	0.6	0.6	0.6
Applications			Sheet, Film	Sheet, Film	Industrial Parts	Bottle	Medical Package	Optical F

MITSUI CHEMICALS AMERICA, INC.

APEL™ Cyclo Olefin Copolymer (COC)

Properties

The following table provides insight into the complete parameters of all available grade class including the physical, dielectric and optical properties of APEL™.

Grades and Properties of APEL™

→ Introduction
→ Characteristics
Properties
→ Applications

Product